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SEQUENCE LISTING

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<110>   Macina, Roberto A.
        Nair, Manoj
        Chen, Seiyu

<120>   Compositions and Methods Relating to Lung Specific Genes

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<141>   2001-07-20

<150>   60/219,834
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cctcctgtgc cggtcagaag cagccatgat gaagcaccac accctctaca tcaacctcat   14580

ctccatcctg taccaccagc ttggtgagat ccccgctgac ttcttcgtag acattgtctc   14640

ccaagacaac ttcctcacca gcaccttaca gaaaggattc ttgattgaca tcagtgaaga   14700

cttcatcgag gtcctgtttc tcagaggtac agaacgcttt tctaaagcca acctactgtt   14760

ggatgagtcc ctcattgccg tggatgccac cctgagaaag aaagctgaaa agttccaagc   14820

tcacctgacc aagaagttcc ggtgggactt tgctgcggaa cctgaggact gtgccccggt   14880

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<210>   12
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<212>   DNA
<213>   Homo sapien

<400>   12
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cagatgtgtt gtgtgaagct tgtgaccagt tgggatggac aaaacccacc aagatccaga    180

ttgaagctat tcctttggcc ttacaaggtc gtgatatcat tgggcttgca gaaactggct    240

ctggaaagac aggcgccttt gctttgccca ttctaaacgc actgctggag accccgcagc    300

gtttgtttgc cctagttctt accccgactc gggagctggc ctttcagatc tcagagcagt    360

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caatgtctca atctttggcc cttgcaaaaa aaccacatat aataatagca actcctggtc      480

gactgattga ccacttggaa aatacgaaag gtttcaactt gagagctctc aaatacttgg      540

tcatggatga agccgaccga atactgaata tggattttga gacagaggtt gacaagatcc      600

tcaaagtgat tcctcgagat cggaaaacat tcctcttctc tgccaccatg accaagaagg      660

ttcaaaaact tcagcgagca gctctgaaga atcctgtgaa atgtgccgtt tcctctaaat      720

accagacagt tgaaaaatta cagcaatatt atattttat tccctctaaa ttcaaggata      780

cctacctggt ttatattcta aatgaattgg ctggaaactc ctttatgata ttctgcagca      840

cctgtaataa tacccagaga acagctttgc tactgcgaaa tcttggcttc actgccatcc      900

ccctccatgg acaaatgagt cagagtaagc gcctaggatc ccttaataag tttaaggcca      960

aggcccgttc cattcttcta gcaactgacg ttgccagccg aggtttggac atacctcatg     1020

tagatgtggt tgtcaacttt gacattccta cccattccaa ggattacatc catcgagtag     1080

gtcgaacagc tagagctggg cgctccggaa aggctattac ttttgtcaca cagtatgatg     1140

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aggatgatga ggttatgatg ctgacagaac gcgtcgctga agcccaaagg tttgcccgaa     1260

tggagttaag ggagcatgga gaaaagaaga aacgctcgcg agaggatgct ggagataatg     1320

atgacacaga gggtgctatt ggtgtcagga acaaggtggc tggaggaaaa atgaagaagc     1380

ggaaaggccg ttaatcactt ttatgaaggc tcgagttctg ctgttctgta aaagagaatt     1440

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gaatgtgctc agctaattca gtattcttcc ccattctggg ttggagttta ctgcagagta     1560

attcttacag tgctgatgtc aagactgtta ctgttcttcg actttgattc cttgctcatg     1620

acatgagtag ggtgtgctct tctgtcactt cacacagacc ttttgccttt tttagctgca     1680

agtcaaggac taggttgatg atgcccatga cctgtaattg taaagaagct tggacatctg     1740

caaatgatat ttaaaccatc ttggcttgtg ctttattcaa actaatgtga aacaataaat     1800

ttaaatatta tttttaaaaa aaa                                             1823
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<210> 13
<211> 869
<212> DNA
<213> Homo sapien

<400> 13
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ggagcctcgg tcacactcac gtgcagtgtg agcagcgact acaagaatct tgaagtggac      180

tggtttcagc agagaccagg gaagggcccc cgttttgtca tgcgagtggg cactggtggc      240

gttgtgggat tcagaggggc tgacatccct gatcgctttt cagtctcggg ctcaggcctg      300

aatcggtttc tgaccatcag gaacatcgaa gaagaggatg agagtgacta ccactgtggg      360

acggaccttg gcagtgggac cagcttcgtg tcttgggtgt tcggcggagg gaccaagttg      420

accgtcctaa gtcagcccaa ggctgccccc tcggtcactc tgttcccgcc ctcctctgag      480

gagcttcaag ccaacaaggc cacactggtg tgtctcataa gtgacttcta cccgggagcc      540

gtgacagtgg cctggaaggc agatagcagc cccgtcaagg cgggagtgga gaccaccaca      600

ccctccaaac aaagcaacaa caagtacgcg gccagcagct atctgagcct gacgcctgag      660

cagtggaagt ccaacagaag ctacagctgc caggtcacgc atgaagggag caccgtggag      720

aagacagtgg cccctacaga atgttcatag gttctaaacc ctcacccccc ctacgggaga      780

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tctccctgca ctcaataacc gatcgaata                                       869


<210>   14
<211>   799
<212>   DNA
<213>   Homo sapien

<400>   14
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aggccagtct ccacagctcc tgatctatga agtttccaac cggttctctg gagtgtcacc      240

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gctgacgatg ctggagttta ctactgcatg caaactacac agactccgaa cactttggc      360

caggggacga ggctggagat caaacgaact gtggctgcac catctgtctt catcttcccg      420

ccatctgatg agcagttgaa atctggaact gcctctgttg tgtgcctgct gaataacttc      480

tatcccagag aggccaaagt acagtggaag gtggataacg ccctccaatc gggtaactcc      540

caggagagtg tcacagagca ggacagcaag gacagcacct acagcctcag cagcaccctg      600

acgctgagca aagcagacta cgagaaacac aaactctacg cctgcgaagt cacccatcag      660

ggcctgagct cgcccgtcac aaagagcttc aacaggggag agtgttagag ggagaagtgc      720

ccccacctgc tcctcagttc cagcctgacc ccctcccatc ctttggcctc tgaccctttt      780
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<210>   15
<211>   1731
<212>   DNA
<213>   Homo sapien

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cacggtgctc ccttcatgcg tgacctggca gctgtagctt ctgtgggact tccactgctc     240

gggcgtcagg ctcaggtagc tgctggccgc gtacttgttg ttgctctgtt tggagggttt     300

ggtggtctcc actcccgcct tgacggggct gccatctgcc ttccaggcca ctgtcacagc     360

tcccgggtag aagtcactga tcagacacac tagtgtggcc ttgttggctt ggagctcctc     420

agaggagggc gggaacagag tgacagtggg gttggccttg ggctgacctg tgtggacagg     480

gaagggggtg agagagggca gacagaatac cggggtgttg tggagcccct ctctctgtct     540

aaagtctctg ggagggttca cagtgtggcc atccggtcca cccgggggttc tctcctcttc     600

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gccctcccaa gtcacctttc acaggtgtcc tggcccagcc cctctcctct acagcctcaa     720

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cccgtccctc tgtgtcccca tgtcctcatg acccagcaca ggccacagag ctgcagccta    1500
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gacccagagc cctctctgtg ccctccattg gtctcccctt ggggtgacct ctgtgtcacc   1560

aggccgtgtg gccctcccag gctgattggc atccagtcct cagcctagac cctcagctgt   1620

tcttggggct gctcccctag actatgagac tcagcagctc ccaggcccac cccagcagcc   1680

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<210> 16
<211> 662
<212> DNA
<213> Homo sapien

<400> 16
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gaatgtgttg ggcgttgtgc aaaccctaac gtaaatttcc tgacaaaggt agaaagccct   120

ggcatggttc agaggtgggg cctcctccta tgtcgacggg attctagatt cacaccatgg   180

cagaaaatct atttcaggaa cttcaggaac attttcaagc tctgacggca acattaaacc   240

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tatttacttc tgtgctttta tgtggcttcc tgatgtgtta attacccctc acctatagca   420

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gaagggccat ggcttctaca gaaaatatgt ttacatcaaa tacaatcttg ggaagaataa   540

aaaatagctc tcctattcct tacagggaag gctataaaca atattttatt gtactgtttt   600

tataaccaga gtaaaccttt ggattctgtc atggattgaa ttgtgtaacc gcaaaattta   660

ta                                                                  662
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<210> 17
<211> 336
<212> DNA
<213> Homo sapien

<220>
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<222> (268)..(268)
<223> a, c, g or t

<400> 17
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actgacacac agcatgttct caagaaatgt ttgaatcaca gtacattgaa tcagtaacag   180

tctgactgac ccccaggcag aaaatgcaga ggcatttttt ctctctattc cagatttcag   240
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ctcttcccag ggtcatctcc agtgaactgt attaat                             336
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<212>   DNA
<213>   Homo sapien

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<222>   (892)..(892)
<223>   a, c, g or t

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ccttgtctac cttcgagaag agaaagtccc gcgaatatga gcacgtccgc cgcgacctgg    120

accccaacga ggtgtgggag tatcgtgggc gagctgggcg acggcgtctt tcggaatggt    180

ttacaaggcc aagaataagg agacgggtgc tttggctgcg gcaatagtca ttgaaaccaa    240

gagtgaggag gagctggagg actacatcgt ggagattgag atcctggcca cctgcgacca    300

cccctacatt gtgaagctcc tgggagccta ctatcacgac gggaagctgt ggatcatgat    360

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caagaggatc atccaccgag atctgaaagc tggcaacgtg ctgatgaccc tcgagggaga    540

catcaggctg gctgactttg gtgtgtctgc caagaatctg aagactctac agaaacgaga    600

ttccttcatc ggcacgcctt actggatggc ccccgaggtg gtcatgtgtg agaccatgaa    660

agacacgccc tacgactaca agccgacat ctggtccctg ggcatcacgc tgattgagat    720

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aaggccgagg tgatggaaga gatcgaagac ggccgggatg aggggaaga ggaggacgcc   1020

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accagtcccc cagtcgtggc ccctggaaat gagaacggcc tggcagtgcc tgtgcccctg   1260
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tgtgtgtgcc catggccctt ttctcctgac cccattttaa ttttattcat tttttccttt    3240

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aaggaaatac tttctgactc attgnaattt gntatagtca nagtaagtaa ggcacaaant      180

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ctgaagccac acactgccta cagaatcagc attcgagctt ttacacagct cttttgatgag  4800

gacctgaagg aattcacaaa gccactctat tcagacacat tttttctttt acccatcact   4860

actgaatcag agcccttgtt tggagctatt gaaggtgtga gtgctggtct gtttttaatt   4920

ggcatgctag tggctgttgt tgccttattg atctgcagac agaaagtgag ccatggtcga   4980

gaaagaccct ctgcccgtct gagcattcgt agggatcgac cattatctgt ccacttaaac   5040

ctgggccaga aaggtaaccg gaaaacttct tgtccaataa aaataaatca gtttgaaggg   5100

catttcatga agctacaggc tgactccaac taccttctat ccaaggaata cgaggagtta   5160

aaagacgtgg gccgaaacca gtcatgtgac attgcactct tgccggagaa tagagggaaa   5220

aatcgataca acaatatatt gccctatgat gccacgcgag tgaagctctc caatgtagat   5280

gatgatcctt gctctgacta catcaatgcc agctacatcc ctggcaacaa cttcagaaga   5340

gaatacattg tcactcaggg accgcttcct ggcaccaagg atgacttctg gaaaatggtg   5400

tgggaacaaa acgttcacaa catcgtcatg gtgacccagt gtgttgagaa gggccgagta   5460

aagtgtgacc attactggcc agcggaccag gattccctct actatgggga cctcatcctg   5520

cagatgctct cagagtccgt cctgcctgag tggaccatcc gggagtttaa gatatgcggt   5580

gaggaacagc ttgatgcaca cagactcatc cgccactttc actatacggt gtggccagac   5640
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atcaacagaa gcccgggtgc tgggcccact gtggtgcact gcagtgctgg tgtgggtagg   5760

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gacatttatg gagcagtgca cgacctaaga cttcacaggg ttcacatggt ccagactgag   5880

tgtcagtatg tctacctaca tcagtgtgta agagatgtcc tcagagcaag aaagctacgg   5940

agtgaacaag aaaacccctt gtttccaatc tatgaaaatg tgaatccaga gtatcacaga   6000

gatccagtct attcaaggca ttgagaatgt acctgaagag ctcctggata aaaattattc   6060

actgtgtgat ttgttttaa aaacttgctt catgccctac agaggtgcca gctatttctg   6120

ttgatactat gtataattta ttaatctgga gaatgtttaa aattttatat aatttaaagg   6180

taacagatat tattgtacat agttgtattt tgtagtttct tctgtaaata tgtatttttc   6240

ataatgttta atattaagct ttatataata ctatttttcc acactaaagt gttcatgact   6300

tgttctacat aaaactaatt caacctgtat gacaggacta ctggtaaaat gcatatggag   6360

gtggtggcag agacaatcct tcaggccatg ttttctacct gttttgatat tcactggaca   6420

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gccagctata cccagactgg aaacataaca tgcaaagcac tatctacagt gattagagat   6840

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cattcctact tgatttccca ttaaaagaat attatggtag cagattgtgc ccctcattaa   7020

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aaacaatagc aaaaacaaaa acagtggtct tcagtaaaat tttcaaaact tcttttagta   7140

aatcaatgaa gtcaaaatgt caagtaatca cccaaagttg catttaataa caaaaggcac   7200

tacatactgt accaagttta tcttcaatat ttgtgcctta cttactttga ctataacaaa   7260

ttccaatgag tcagaaagta tttccttcat caaggtccag ttccgacagc attcctggga   7320

aaaatttgaa aggagtttgt acggaatctt catagatacc tgagaagatg agctggagat   7380

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aaaa                                                                 7444


<210>  38
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<212>  DNA
<213>  Homo sapien

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<223>  a, c, g or t


<220>
<221>  misc_feature
<222>  (1011)..(1011)
<223>  a, c, g or t


<400>  38
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tgcagtgaac agcaaccaat ccaatgttgt aattgaagac tttgagtcct cacggatctc     180

ttcgtctttg cagcgtagcc cgagtcggtc agcgccggag gacctcagca gccatgtcga     240

agccccatag tgaagccggg actgccttca ttcagaccca gcagctgcac gcagccatgg     300

ctgacacatt cctggagcac atgtgccgcc tggacattga ttcaccaccc atcacagccc     360

ggaacactgg catcatctgt accattgggc ccagcttccc gatcagtgga gacgttgaag     420

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ctggataacg cctacatgga aaagtgtgac gagaacatcc tgtggctgga ctacaagaac     720

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ggcagcaaga agggtgtgaa ccttcctggg gctgctgtgg acttgcctgc tgtgtcggag     900

aaggacatcc caggatctga aagtttgggg gtcgagcagg atgttgatat ggtgtttggc     960

gtcattccat cccgcaaagg catctggatg tcccatggaa ngtttaggaa nggtcctggg    1020

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```

```
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gactgcatca tgctgtctgg agaaacagcc aaaggggact atcctctgga ggctgtgcgc    1380

atgcagcacc tgattgcccg tgaggcagag gctgccatct accacttgca attatttgag    1440

gaactccgcc gcctggcgcc cattaccagc gaccccacag aagccaccgc cgtgggtgcc    1500

gtggaggcct ccttcaagtg ctgcagtggg gccataatcg tcctcaccaa gtctggcagg    1560

tctgctcacc aggtggccag ataccgccca cgtgccccca tcattgctgt gacccggaat    1620

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cctggctccg gcttcaccaa caccatgcgt gttgttcctg tgccgtgatg acccccagag    1860

cccctcctcc agcccctgtc ccaccccctt cccccagccc atccattagg ccagcaacgc    1920

ttgtagaact cactctgggc tgtaacgtgg cactggtagg ttgggacacc agggaagaag    1980

atcaacgcct cactgaaaca tggctgtgtt tgcagcctgc tctagtggga cagcccagag    2040

cctggctgcc catcatgtgg ccccacccaa tcaagggaag aaggaggaat gctggactgg    2100

aggcccctgg agccagatgg caagagggtg acagcttcct ttcctgtgtg tactctgtcc    2160

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<210> 39
<211> 298
<212> PRT
<213> Homo sapien

<400> 39

```
Trp Ser Tyr Arg Gly Gly Gly Arg Tyr Tyr Ala Asp Ser Val Arg Gly
1               5                   10                  15
```

Arg Thr Val Ser Arg Asp Asn Ala Lys Asn Ser Tyr Met Asn Ser Arg
        20   25   30

Ala Asp Thr Ala Val Tyr Cys Ala Arg Ala Asn Tyr Asp Cys Trp Ser
        35   40   45

Gly Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly Ser Val Ala Cys
        50   55   60

Ser Arg Ser Thr Ser Gly Gly Thr Ala Ala Gly Cys Val Lys Asp Tyr
65   70   75   80

Val Thr Val Ser Trp Asn Ser Gly Ala Thr Ser Gly Val His Thr Ala
            85   90   95

Val Ser Ser Gly Tyr Ser Ser Ser Val Val Thr Val Ser Ser Ser Gly
            100   105   110

Thr Thr Tyr Thr Cys Asn Val Asn His Lys Ser Asn Thr Lys Val Asp
        115   120   125

Lys Arg Val Lys Thr Gly Asp Thr Thr His Thr Cys Arg Cys Lys Ser
    130   135   140

Cys Asp Thr Cys Arg Cys Lys Ser Cys Asp Thr Cys Arg Cys Ala Gly
145   150   155   160

Gly Ser Val Lys Lys Asp Thr Met Ser Arg Thr Val Thr Cys Val Val
            165   170   175

Val Asp Val Ser His Asp Val Lys Trp Tyr Val Asp Gly Val Val His
            180   185   190

Asn Ala Lys Thr Lys Arg Asn Ser Thr Arg Val Val Ser Val Thr Val
        195   200   205

His Asp Trp Asn Gly Lys Tyr Lys Cys Lys Val Ser Asn Lys Ala Ala
    210   215   220

Lys Thr Ser Lys Thr Lys Gly Arg Val Tyr Thr Ser Arg Met Thr Lys
225   230   235   240

Asn Val Ser Thr Cys Val Lys Gly Tyr Ser Asp Ala Val Trp Ser Ser
            245   250   255

Gly Asn Asn Tyr Asn Thr Thr Met Asp Ser Asp Gly Ser Tyr Ser Lys
        260   265   270

Thr Val Asp Lys Ser Arg Trp Gly Asn Ser Cys Ser Val Met His Ala
        275   280   285

His Asn Arg Thr Lys Ser Ser Ser Gly Lys
    290   295

<210> 40
<211> 168
<212> PRT
<213> Homo sapien

<400> 40

Pro Gln Leu Ala Cys Leu Phe Gln Val Lys Ser Gly Ser Pro Ala Val
1   5   10   15

Leu Ala Phe Ala Lys Glu Lys Ser Phe Gly Trp Pro Ser Phe Ile Thr
        20   25   30

Tyr Thr Val Gly Val Ser Asp Pro Ala Ala Gly Ser Gln Gly Pro Leu
        35   40   45

Ser Thr Thr Leu Thr Phe Ser Ser Pro Val Thr Asn Gln Ala Ile Ala
        50   55   60

Ile Pro Val Thr Val Ala Phe Val Met Asp Arg Arg Gly Pro Gly Pro
65   70   75   80

Tyr Gly Ala Ser Leu Phe Gln His Phe Leu Asp Ser Tyr Gln Val Met
            85   90   95

Phe Phe Thr Leu Phe Ala Leu Leu Ala Gly Thr Ala Val Met Ile Ile
        100   105   110

Ala Tyr His Thr Val Cys Thr Pro Arg Asp Leu Ala Val Pro Ala Ala
    115   120   125

Leu Thr Pro Arg Ala Ser Pro Gly His Ser Pro His Tyr Phe Ala Ala
    130   135   140

Ser Ser Pro Thr Ser Pro Asn Ala Leu Pro Pro Ala Arg Lys Ala Ser
145   150   155   160

Pro Pro Ser Gly Leu Trp Ser Pro
                165

<210>   41
<211>   78
<212>   PRT
<213>   Homo sapien

<400>   41

Val Ser Glu Gly Ala Thr Trp Ala Ile Gly Phe Pro Ala Ser Phe Pro
1   5   10   15

Leu Phe Leu Ala Pro Ala Ala Glu Ala Gly Arg Pro Trp Arg Thr Ser
                20   25   30

Trp Gly Leu Thr Ala Ala Ser Pro Gly Ser Ser Trp Gly His Leu Ser
            35   40   45

Ser Lys Val Cys Thr Gln Glu Val Pro His His Ile Gln Pro His Gly
        50   55   60

Ser Pro Arg Ser Ala Arg Gln Gln Ile Arg Ala Pro Cys His
65   70   75

<210>   42
<211>   1118
<212>   PRT
<213>   Homo sapien

<400>   42

Met Ala Arg Ser Pro Gly Arg Ala Tyr Ala Leu Leu Leu Leu Leu Ile
1   5   10   15

Cys Phe Asn Val Gly Ser Gly Leu His Leu Gln Val Leu Ser Thr Arg
                20   25   30

Asn Glu Asn Lys Leu Leu Pro Lys His Pro His Leu Val Arg Gln Lys
            35   40   45

Arg Ala Trp Ile Thr Ala Pro Val Ala Leu Arg Glu Gly Glu Asp Leu
        50   55   60

Ser Lys Lys Asn Pro Ile Ala Lys Ile His Ser Asp Leu Ala Glu Glu
65   70   75   80

Arg Gly Leu Lys Ile Thr Tyr Lys Tyr Thr Gly Lys Gly Ile Thr Glu
            85   90   95

Pro Pro Phe Gly Ile Phe Val Phe Asn Lys Asp Thr Gly Glu Leu Asn
            100   105   110

Val Thr Ser Ile Leu Asp Arg Glu Glu Thr Pro Phe Phe Leu Leu Thr
            115   120   125

Gly Tyr Ala Leu Asp Ala Arg Gly Asn Asn Val Glu Lys Pro Leu Glu
    130   135   140

Leu Arg Ile Lys Val Leu Asp Ile Asn Asp Asn Glu Pro Val Phe Thr
145   150   155   160

Gln Asp Val Phe Val Gly Ser Val Glu Glu Leu Ser Ala Ala His Thr
            165   170   175

Leu Val Met Lys Ile Asn Ala Thr Asp Ala Asp Glu Pro Asn Thr Leu
            180   185   190

Asn Ser Lys Ile Ser Tyr Arg Ile Val Ser Leu Glu Pro Ala Tyr Pro
            195   200   205

Pro Val Phe Tyr Leu Asn Lys Asp Thr Gly Glu Ile Tyr Thr Thr Ser
    210   215   220

Val Thr Leu Asp Arg Glu Glu His Ser Ser Tyr Thr Leu Thr Val Glu
225   230   235   240

Ala Arg Asp Gly Asn Gly Glu Val Thr Asp Lys Pro Val Lys Gln Ala
            245   250   255

Gln Val Gln Ile Arg Ile Leu Asp Val Asn Asp Asn Ile Pro Val Val
            260   265   270

Glu Asn Lys Val Leu Glu Gly Met Val Glu Glu Asn Gln Val Asn Val
            275   280   285

Glu Val Thr Arg Ile Lys Val Phe Asp Ala Asp Glu Ile Gly Ser Asp
    290   295   300

Asn Trp Leu Ala Asn Phe Thr Phe Ala Ser Gly Asn Glu Gly Gly Tyr
305   310   315   320

```
Phe His Ile Glu Thr Asp Ala Gln Thr Asn Glu Gly Ile Val Thr Leu
                325             330             335

Ile Lys Glu Val Asp Tyr Glu Glu Met Lys Asn Leu Asp Phe Ser Val
                340             345             350

Ile Val Ala Asn Lys Ala Ala Phe His Lys Ser Ile Arg Ser Lys Tyr
            355             360             365

Lys Pro Thr Pro Ile Pro Ile Lys Val Lys Val Lys Asn Val Lys Glu
    370             375             380

Gly Ile His Phe Lys Ser Ser Val Ile Ser Ile Tyr Val Ser Glu Ser
385             390             395             400

Met Asp Arg Ser Ser Lys Gly Gln Ile Ile Gly Asn Phe Gln Ala Phe
                405             410             415

Asp Glu Asp Thr Gly Leu Pro Ala His Ala Arg Tyr Val Lys Leu Glu
            420             425             430

Asp Arg Asp Asn Trp Ile Ser Val Asp Ser Val Thr Ser Glu Ile Lys
            435             440             445

Leu Ala Lys Leu Pro Asp Phe Glu Ser Arg Tyr Val Gln Asn Gly Thr
    450             455             460

Tyr Thr Val Lys Ile Val Ala Ile Ser Glu Asp Tyr Pro Arg Lys Thr
465             470             475             480

Ile Thr Gly Thr Val Leu Ile Asn Val Glu Asp Ile Asn Asp Asn Cys
                485             490             495

Pro Thr Leu Ile Glu Pro Val Gln Thr Ile Cys His Asp Ala Glu Tyr
            500             505             510

Val Asn Val Thr Ala Glu Asp Leu Asp Gly His Pro Asn Ser Gly Pro
            515             520             525

Phe Ser Phe Ser Val Ile Asp Lys Pro Pro Gly Met Ala Glu Lys Trp
    530             535             540

Lys Ile Ala Arg Gln Glu Ser Thr Ser Val Leu Leu Gln Gln Ser Glu
```

```
545                        550                        555                        560

Lys Lys Leu Gly Arg Ser Glu Ile Gln Phe Leu Ile Ser Asp Asn Gln
                565                    570            575

Gly Phe Ser Cys Pro Glu Lys Gln Val Leu Thr Leu Thr Val Cys Glu
                580                    585            590

Cys Leu His Gly Ser Gly Cys Arg Glu Ala Gln His Asp Ser Tyr Val
            595                600                605

Gly Leu Gly Pro Ala Ala Ile Ala Leu Met Ile Leu Ala Phe Leu Leu
    610                615                620

Leu Leu Leu Val Pro Leu Leu Leu Leu Met Cys His Cys Gly Lys Gly
625                630                635                        640

Ala Lys Gly Phe Thr Pro Ile Pro Gly Thr Ile Glu Met Leu His Pro
                645                650                        655

Trp Asn Asn Glu Gly Ala Pro Pro Glu Asp Lys Val Val Pro Ser Phe
            660                665                670

Leu Pro Val Asp Gln Gly Gly Ser Leu Val Gly Arg Asn Gly Val Gly
        675                680                685

Gly Met Ala Lys Glu Ala Thr Met Lys Gly Ser Ser Ser Ala Ser Ile
    690                695                700

Val Lys Gly Gln His Glu Met Ser Glu Met Asp Gly Arg Trp Glu Glu
705                710                715                        720

His Arg Ser Leu Leu Ser Gly Arg Ala Thr Gln Phe Thr Gly Ala Thr
                725                730                735

Gly Ala Ile Met Thr Thr Glu Thr Thr Lys Thr Ala Arg Ala Thr Gly
            740                745                750

Ala Ser Arg Asp Met Ala Gly Ala Gln Ala Ala Ala Val Ala Leu Asn
        755                760                765

Glu Glu Phe Leu Arg Asn Tyr Phe Thr Asp Lys Ala Ala Ser Tyr Thr
    770                775                780
```

Glu Glu Asp Glu Asn His Thr Ala Lys Asp Cys Leu Leu Val Tyr Ser
785   790   795   800

Gln Glu Glu Thr Glu Ser Leu Asn Ala Ser Ile Gly Cys Cys Ser Phe
            805   810   815

Ile Glu Gly Glu Leu Asp Asp Arg Phe Leu Asp Asp Leu Gly Leu Lys
            820   825   830

Phe Lys Thr Leu Ala Glu Val Cys Leu Gly Gln Lys Ile Asp Ile Asn
        835   840   845

Lys Glu Ile Glu Gln Arg Gln Lys Pro Ala Thr Glu Thr Ser Met Asn
    850   855   860

Thr Ala Ser His Ser Leu Cys Glu Gln Thr Met Val Asn Ser Glu Asn
865   870   875   880

Thr Tyr Ser Ser Gly Ser Ser Phe Pro Val Pro Lys Ser Leu Gln Glu
            885   890   895

Ala Asn Ala Glu Lys Val Thr Gln Glu Ile Val Thr Glu Arg Ser Val
        900   905   910

Ser Ser Arg Gln Ala Gln Lys Val Ala Thr Pro Leu Pro Asp Pro Met
        915   920   925

Ala Ser Arg Asn Val Ile Ala Thr Glu Thr Ser Tyr Val Thr Gly Ser
    930   935   940

Thr Met Pro Pro Thr Thr Val Ile Leu Gly Pro Ser Gln Pro Gln Ser
945   950   955   960

Leu Ile Val Thr Glu Arg Val Tyr Ala Pro Ala Ser Thr Leu Val Asp
            965   970   975

Gln Pro Tyr Ala Asn Glu Gly Thr Val Val Val Thr Glu Arg Val Ile
        980   985   990

Gln Pro His Gly Gly Gly Ser Asn Pro Leu Glu Gly Thr Gln His Leu
        995   1000   1005

Gln Asp Val Pro Tyr Val Met Val Arg Glu Arg Glu Ser Phe Leu
    1010   1015   1020

```
Ala Pro  Ser Ser Gly Val Gln  Pro Thr Leu Ala Met  Pro Asn Ile
    1025                  1030              1035
```

```
Ala Val  Gly Gln Asn Val Thr  Val Thr Glu Arg Val  Leu Ala Pro
    1040                  1045              1050
```

```
Ala Ser  Thr Leu Gln Ser Ser  Tyr Gln Ile Pro Thr  Glu Asn Ser
    1055                  1060              1065
```

```
Met Thr  Ala Arg Asn Thr Thr  Val Ser Gly Ala Gly  Val Pro Gly
    1070                  1075              1080
```

```
Pro Leu  Pro Asp Phe Gly Leu  Glu Glu Ser Gly His  Ser Asn Ser
    1085                  1090              1095
```

```
Thr Ile  Thr Thr Ser Ser Thr  Arg Val Thr Lys His  Ser Thr Val
    1100                  1105              1110
```

```
Gln His  Ser Tyr Ser
    1115
```

```
<210>  43
<211>  97
<212>  PRT
<213>  Homo sapien
```

```
<400>  43
```

```
Met Thr Lys Gly Thr Ser Ser Phe Gly Lys Arg Arg Asn Lys Thr His
1                   5                   10                  15
```

```
Thr Leu Cys Arg Arg Cys Gly Ser Lys Ala Tyr His Leu Gln Lys Ser
            20                  25                  30
```

```
Thr Cys Gly Lys Cys Gly Tyr Pro Ala Lys Arg Lys Arg Lys Tyr Asn
            35                  40                  45
```

```
Trp Ser Ala Lys Ala Lys Arg Arg Asn Thr Thr Gly Thr Gly Arg Met
    50                  55                  60
```

```
Arg His Leu Lys Ile Val Tyr Arg Arg Phe Arg His Gly Phe Arg Glu
65                  70                  75                  80
```

```
Gly Thr Thr Pro Lys Pro Lys Arg Ala Ala Val Ala Ala Ser Ser Ser
            85                  90                  95
```

Ser

<210> 44
<211> 889
<212> PRT
<213> Homo sapien

<400> 44

Met Ala Ala Ala Val Gly Val Arg Gly Arg Tyr Glu Leu Pro Pro Cys
1   5   10   15

Ser Gly Pro Gly Trp Leu Leu Ser Leu Ser Ala Leu Leu Ser Val Ala
            20   25   30

Ala Arg Gly Ala Phe Ala Thr Thr His Trp Val Val Thr Glu Asp Gly
        35   40   45

Lys Ile Gln Gln Gln Val Asp Ser Pro Met Asn Leu Lys His Pro His
    50   55   60

Asp Leu Val Ile Leu Met Arg Gln Glu Ala Thr Val Asn Tyr Leu Lys
65   70   75   80

Glu Leu Glu Lys Gln Leu Val Ala Gln Lys Ile His Ile Glu Glu Asn
            85   90   95

Glu Asp Arg Asp Thr Gly Leu Glu Gln Arg His Asn Lys Glu Asp Pro
            100   105   110

Asp Cys Ile Lys Ala Lys Val Pro Leu Gly Asp Leu Asp Leu Tyr Asp
        115   120   125

Gly Thr Tyr Ile Thr Leu Glu Ser Lys Asp Ile Ser Pro Glu Asp Tyr
    130   135   140

Ile Asp Thr Glu Ser Pro Val Pro Pro Asp Pro Glu Gln Pro Asp Cys
145   150   155   160

Thr Lys Ile Leu Glu Leu Pro Tyr Ser Ile His Ala Phe Gln His Leu
            165   170   175

Arg Gly Val Gln Glu Arg Val Asn Leu Ser Ala Pro Leu Leu Pro Lys
            180   185   190

```
Glu Asp Pro Ile Phe Thr Tyr Leu Ser Lys Arg Leu Gly Arg Ser Ile
        195             200             205

Asp Asp Ile Gly His Leu Ile His Glu Gly Leu Gln Lys Asn Thr Ser
        210             215             220

Ser Trp Val Leu Tyr Asn Met Ala Ser Phe Tyr Trp Arg Ile Lys Asn
225             230             235             240

Glu Pro Tyr Gln Val Val Glu Cys Ala Met Arg Ala Leu His Phe Ser
            245             250             255

Ser Arg His Asn Lys Asp Ile Ala Leu Val Asn Leu Ala Asn Val Leu
            260             265             270

His Arg Ala His Phe Ser Ala Asp Ala Ala Val Val Val His Ala Ala
        275             280             285

Leu Asp Asp Ser Asp Phe Phe Thr Ser Tyr Tyr Thr Leu Gly Asn Ile
        290             295             300

Tyr Ala Met Leu Gly Glu Tyr Asn His Ser Val Leu Cys Tyr Asp His
305             310             315             320

Ala Leu Gln Ala Arg Pro Gly Phe Glu Gln Ala Ile Lys Arg Lys His
            325             330             335

Ala Val Leu Cys Gln Gln Lys Leu Glu Gln Lys Leu Glu Ala Gln His
            340             345             350

Arg Ser Leu Gln Arg Thr Leu Asn Glu Leu Lys Glu Tyr Gln Lys Gln
        355             360             365

His Asp His Tyr Leu Arg Gln Gln Glu Ile Leu Glu Lys His Lys Leu
        370             375             380

Ile Gln Glu Glu Gln Ile Leu Arg Asn Ile Ile His Glu Thr Gln Met
385             390             395             400

Ala Lys Glu Ala Gln Leu Gly Asn His Gln Ile Cys Arg Leu Val Asn
            405             410             415

Gln Gln His Ser Leu His Cys Gln Trp Asp Gln Pro Val Arg Tyr His
        420             425             430
```

Arg Gly Asp Ile Phe Glu Asn Val Asp Tyr Val Gln Phe Gly Glu Asp
    435   440   445

Ser Ser Thr Ser Ser Met Met Ser Val Asn Phe Asp Val Gln Ser Asn
    450   455   460

Gln Ser Asp Ile Asn Asp Ser Val Lys Ser Ser Pro Val Ala His Ser
465   470   475   480

Ile Leu Trp Ile Trp Gly Arg Asp Ser Asp Ala Tyr Arg Asp Lys Gln
           485   490   495

His Ile Leu Trp Pro Lys Arg Ala Asp Cys Thr Glu Ser Tyr Pro Arg
       500   505   510

Val Pro Val Gly Gly Glu Leu Pro Thr Tyr Phe Leu Pro Pro Glu Asn
      515   520   525

Lys Gly Leu Arg Ile His Glu Leu Ser Ser Asp Asp Tyr Ser Thr Glu
    530   535   540

Glu Glu Ala Gln Thr Pro Asp Cys Ser Ile Thr Asp Phe Arg Lys Ser
545   550   555   560

His Thr Leu Ser Tyr Leu Val Lys Glu Leu Glu Val Arg Met Asp Leu
       565   570   575

Lys Ala Lys Met Pro Asp Asp His Ala Arg Lys Ile Leu Leu Ser Arg
       580   585   590

Ile Asn Asn Tyr Thr Ile Pro Glu Glu Glu Ile Gly Ser Phe Leu Phe
      595   600   605

His Ala Ile Asn Lys Pro Asn Ala Pro Ile Trp Leu Ile Leu Asn Glu
      610   615   620

Ala Gly Leu Tyr Trp Arg Ala Val Gly Asn Ser Thr Phe Ala Ile Ala
625   630   635   640

Cys Leu Gln Arg Ala Leu Asn Leu Ala Pro Leu Gln Tyr Gln Asp Val
       645   650   655

Pro Leu Val Asn Leu Ala Asn Leu Leu Ile His Tyr Gly Leu His Leu

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               660                    665                      670

Asp Ala Thr Lys Leu Leu Leu Gln Ala Leu Ala Ile Asn Ser Ser Glu
        675             680                 685

Pro Leu Thr Phe Leu Ser Leu Gly Asn Ala Tyr Leu Ala Leu Lys Asn
        690             695                 700

Ile Ser Gly Ala Leu Glu Ala Phe Arg Gln Ala Leu Lys Leu Thr Thr
705             710                 715                     720

Lys Cys Pro Glu Cys Glu Asn Ser Leu Lys Leu Ile Arg Cys Met Gln
                725             730                 735

Phe Tyr Pro Phe Leu Tyr Asn Ile Thr Ser Ser Val Cys Ser Gly Thr
            740             745                 750

Val Val Glu Glu Ser Asn Gly Ser Asp Glu Met Glu Asn Ser Asp Glu
        755             760                 765

Thr Lys Met Ser Glu Glu Ile Leu Ala Leu Val Asp Glu Phe Gln Gln
    770             775                 780

Ala Trp Pro Leu Glu Gly Phe Gly Gly Ala Leu Glu Met Lys Gly Arg
785             790                 795                     800

Arg Leu Asp Leu Gln Gly Ile Arg Val Leu Lys Lys Gly Pro Gln Asp
                805             810                 815

Gly Val Ala Arg Ser Ser Cys Tyr Gly Asp Cys Arg Ser Glu Asp Asp
            820             825                 830

Glu Ala Thr Glu Trp Ile Thr Phe Gln Val Lys Arg Val Lys Lys Pro
        835             840                 845

Lys Gly Asp His Lys Lys Thr Pro Gly Lys Lys Val Glu Thr Gly Gln
    850             855                 860

Ile Glu Asn Gly His Arg Tyr Gln Ala Asn Leu Glu Ile Thr Gly Pro
865             870                 875                     880

Lys Val Ala Ser Pro Gly Pro Gln Gly
            885
```

<210> 45
<211> 690
<212> PRT
<213> Homo sapien

<400> 45

Phe Leu Thr Leu Phe Ile Phe Arg Ser Gly Leu Cys Arg Gly Asn Ser
1   5   10   15

Val Glu Arg Lys Ile Tyr Ile Pro Leu Asn Lys Thr Ala Pro Cys Val
            20   25   30

Arg Leu Leu Asn Ala Thr His Gln Ile Gly Cys Gln Ser Ser Ile Ser
            35   40   45

Gly Asp Thr Gly Val Ile His Val Val Glu Lys Glu Glu Asp Leu Gln
        50   55   60

Trp Val Leu Thr Asp Gly Pro Asn Pro Pro Tyr Met Val Leu Leu Glu
65   70   75   80

Ser Lys His Phe Thr Arg Asp Leu Met Glu Lys Leu Lys Gly Arg Thr
                85   90   95

Ser Arg Ile Ala Gly Leu Ala Val Ser Leu Thr Lys Pro Ser Pro Ala
            100   105   110

Ser Gly Phe Ser Pro Ser Val Gln Cys Pro Asn Asp Gly Phe Gly Val
            115   120   125

Tyr Ser Asn Ser Tyr Gly Pro Glu Phe Ala His Cys Arg Glu Ile Gln
    130   135   140

Trp Asn Ser Leu Gly Asn Gly Leu Ala Tyr Glu Asp Phe Ser Phe Pro
145   150   155   160

Ile Phe Leu Leu Glu Asp Glu Asn Glu Thr Lys Val Ile Lys Gln Cys
                165   170   175

Tyr Gln Asp His Asn Leu Ser Gln Asn Gly Ser Ala Pro Thr Phe Pro
            180   185   190

Leu Cys Ala Met Gln Leu Phe Ser His Met His Ala Val Ile Ser Thr
            195   200   205

Ala Thr Cys Met Arg Arg Ser Ser Ile Gln Ser Thr Phe Ser Ile Asn
    210   215   220

Pro Glu Ile Val Cys Asp Pro Leu Ser Asp Tyr Asn Val Trp Ser Met
225   230   235   240

Leu Lys Pro Ile Asn Thr Thr Gly Thr Leu Lys Pro Asp Asp Arg Val
            245   250   255

Val Val Ala Ala Thr Arg Leu Asp Ser Arg Ser Phe Phe Trp Asn Val
        260   265   270

Ala Pro Gly Ala Glu Ser Ala Val Ala Ser Phe Val Thr Gln Leu Ala
        275   280   285

Ala Ala Glu Ala Leu Gln Lys Ala Pro Asp Val Thr Thr Leu Pro Arg
    290   295   300

Asn Val Met Phe Val Phe Phe Gln Gly Glu Thr Phe Asp Tyr Ile Gly
305   310   315   320

Ser Ser Arg Met Val Tyr Asp Met Glu Lys Gly Lys Phe Pro Val Gln
            325   330   335

Leu Glu Asn Val Asp Ser Phe Val Glu Leu Gly Gln Val Ala Leu Arg
            340   345   350

Thr Ser Leu Glu Leu Trp Met His Thr Asp Pro Val Ser Gln Lys Asn
        355   360   365

Glu Ser Val Arg Asn Gln Val Glu Asp Leu Leu Ala Thr Leu Glu Lys
    370   375   380

Ser Gly Ala Gly Val Pro Ala Val Ile Leu Arg Arg Pro Asn Gln Ser
385   390   395   400

Gln Pro Leu Pro Pro Ser Ser Leu Gln Arg Phe Leu Arg Ala Arg Asn
            405   410   415

Ile Ser Gly Val Val Leu Ala Asp His Ser Gly Ala Phe His Asn Lys
            420   425   430

Tyr Tyr Gln Ser Ile Tyr Asp Thr Ala Glu Asn Ile Asn Val Ser Tyr
    435   440   445

Pro Glu Trp Leu Ser Pro Glu Glu Asp Leu Asn Phe Val Thr Asp Thr
    450   455   460

Ala Lys Ala Leu Ala Asp Val Ala Thr Val Leu Gly Arg Ala Leu Tyr
465   470   475   480

Glu Leu Ala Gly Gly Thr Asn Phe Ser Asp Thr Val Gln Ala Asp Pro
            485   490   495

Gln Thr Val Thr Arg Leu Leu Tyr Gly Phe Leu Ile Lys Ala Asn Asn
         500   505   510

Ser Trp Phe Gln Ser Ile Leu Arg Gln Asp Leu Arg Ser Tyr Leu Gly
        515   520   525

Asp Gly Pro Leu Gln His Tyr Ile Ala Val Ser Ser Pro Thr Asn Thr
      530   535   540

Thr Tyr Val Val Gln Tyr Ala Leu Ala Asn Leu Thr Gly Thr Val Val
545   550   555   560

Asn Leu Thr Arg Glu Gln Cys Gln Asp Pro Ser Lys Val Pro Ser Glu
        565   570   575

Asn Lys Asp Leu Tyr Glu Tyr Ser Trp Val Gln Gly Pro Leu His Ser
        580   585   590

Asn Glu Thr Asp Arg Leu Pro Arg Cys Val Arg Ser Thr Ala Arg Leu
        595   600   605

Ala Arg Ala Leu Ser Pro Ala Phe Glu Leu Ser Gln Trp Ser Ser Thr
      610   615   620

Glu Tyr Ser Thr Trp Thr Glu Ser Arg Trp Lys Asp Ile Arg Ala Arg
625   630   635   640

Ile Phe Leu Ile Ala Ser Lys Glu Leu Glu Leu Ile Thr Leu Thr Val
        645   650   655

Gly Phe Gly Ile Leu Ile Phe Ser Leu Ile Val Thr Tyr Cys Ile Asn
        660   665   670

Ala Lys Ala Asp Val Leu Phe Ile Ala Pro Arg Glu Pro Gly Ala Val
      675   680   685

Ser Tyr
690

<210> 46
<211> 170
<212> PRT
<213> Homo sapien

<400> 46

Gln Val Pro Arg Ser Lys Ala Leu Glu Val Thr Lys Leu Ala Ile Glu
1   5   10   15

Ala Gly Phe Arg His Ile Asp Ser Ala His Leu Tyr Asn Asn Glu Glu
            20   25   30

Gln Val Gly Leu Ala Ile Arg Ser Lys Ile Ala Asp Gly Ser Val Lys
            35   40   45

Arg Glu Asp Ile Phe Tyr Thr Ser Lys Leu Trp Ser Thr Phe His Arg
        50   55   60

Pro Glu Leu Val Arg Pro Ala Leu Glu Asn Ser Leu Lys Lys Ala Gln
65   70   75   80

Leu Asp Tyr Val Asp Leu Tyr Leu Ile His Ser Pro Met Ser Leu Lys
                85   90   95

Pro Gly Glu Glu Leu Ser Pro Thr Asp Glu Gln Val Ala Lys Val Ile
            100   105   110

Phe Asp Ile Val Asp Leu Cys Thr Thr Trp Glu Gly Met Glu Lys Cys
            115   120   125

Lys Asp Gly Arg Asn Trp Gly Lys Ser Ile Gly Val Ser His Phe Asn
    130   135   140

Pro Gln Ala Leu Gly Met Ser Leu Gln Lys Ala Gly Ile Gln Leu Lys
145   150   155   160

Arg Ser Ala Pro Val Glu Cys Pro Ile Tyr
                165   170

<210> 47
<211> 1596

<212> PRT
<213> Homo sapien

<400> 47

Met Thr Thr Glu Thr Gly Pro Asp Ser Glu Val Lys Lys Ala Gln Glu
1   5   10   15

Glu Ala Pro Gln Gln Pro Glu Ala Ala Ala Ala Val Thr Thr Pro Val
            20   25   30

Thr Pro Ala Gly His Gly His Pro Glu Ala Asn Ser Asn Glu Lys His
            35   40   45

Pro Ser Gln Gln Asp Thr Arg Pro Ala Glu Gln Ser Leu Asp Met Glu
        50   55   60

Glu Lys Asp Tyr Ser Glu Ala Asp Gly Leu Ser Glu Arg Thr Thr Pro
65   70   75   80

Ser Lys Ala Gln Lys Ser Pro Gln Lys Ile Ala Lys Lys Tyr Lys Ser
                85   90   95

Ala Ile Cys Arg Val Thr Leu Leu Asp Ala Ser Glu Tyr Glu Cys Glu
            100   105   110

Val Glu Lys His Gly Arg Gly Gln Val Leu Phe Asp Leu Val Cys Glu
            115   120   125

His Leu Asn Leu Leu Glu Lys Asp Tyr Phe Gly Leu Thr Phe Cys Asp
        130   135   140

Ala Asp Ser Gln Lys Asn Trp Leu Asp Pro Ser Lys Glu Ile Lys Lys
145   150   155   160

Gln Ile Arg Ser Glu Trp Leu Val Val Phe Gly Glu Val Gly Ser Pro
                165   170   175

Trp Asn Phe Ala Phe Thr Val Lys Phe Tyr Pro Pro Asp Pro Ala Gln
            180   185   190

Leu Thr Glu Asp Ile Thr Arg Tyr Tyr Leu Cys Leu Gln Leu Arg Ala
            195   200   205

Asp Ile Ile Thr Gly Arg Leu Pro Cys Ser Phe Val Thr His Ala Leu
210   215   220

Leu Gly Ser Tyr Ala Val Gln Ala Glu Leu Gly Asp Tyr Asp Ala Glu
225   230   235   240

Glu His Val Gly Asn Tyr Val Ser Glu Leu Arg Phe Ala Pro Asn Gln
                245   250   255

Thr Arg Glu Leu Glu Glu Arg Ile Met Glu Leu His Lys Thr Tyr Arg
            260   265   270

Gly Met Thr Pro Gly Glu Ala Glu Ile His Phe Leu Glu Asn Ala Lys
            275   280   285

Lys Leu Ser Met Tyr Gly Val Asp Leu His His Ala Lys Asp Ser Glu
        290   295   300

Gly Ile Asp Ile Met Leu Gly Val Cys Ala Asn Gly Leu Leu Ile Tyr
305   310   315   320

Arg Asp Arg Leu Arg Ile Asn Arg Phe Ala Trp Pro Lys Ile Leu Lys
            325   330   335

Ile Ser Tyr Lys Arg Ser Asn Phe Tyr Ile Lys Ile Arg Pro Gly Glu
        340   345   350

Tyr Glu Gln Phe Glu Ser Thr Ile Gly Phe Lys Leu Pro Asn His Arg
        355   360   365

Ser Ala Lys Arg Leu Trp Lys Val Cys Ile Glu His His Thr Phe Phe
    370   375   380

Arg Leu Val Ser Pro Glu Pro Pro Pro Lys Gly Phe Leu Val Met Gly
385   390   395   400

Ser Lys Phe Arg Tyr Ser Gly Arg Thr Gln Ala Gln Thr Arg Gln Ala
            405   410   415

Ser Ala Leu Ile Asp Arg Pro Ala Pro Phe Phe Glu Arg Ser Ser Ser
            420   425   430

Lys Arg Tyr Thr Met Ser Arg Ser Leu Asp Gly Ala Glu Phe Ser Arg
        435   440   445

Pro Ala Ser Val Ser Glu Asn His Asp Ala Gly Pro Asp Gly Asp Lys

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      450                    455                    460

Arg Asp Glu Asp Gly Glu Ser Gly Gly Gln Arg Ser Glu Ala Glu Glu
465             470             475             480

Gly Glu Val Arg Thr Pro Thr Lys Ile Lys Glu Leu Lys Phe Leu Asp
                485             490             495

Lys Pro Glu Asp Val Leu Leu Lys His Gln Ala Ser Ile Asn Glu Leu
            500             505             510

Lys Arg Thr Leu Lys Glu Pro Asn Ser Lys Leu Ile His Arg Asp Arg
        515             520             525

Asp Trp Glu Arg Glu Arg Arg Leu Pro Ser Ser Pro Ala Ser Pro Ser
    530             535             540

Pro Lys Gly Thr Pro Glu Lys Ala Asn Glu Ser Gln Arg Thr Gln Asp
545             550             555             560

Ile Ser Gln Arg Asp Leu Val Pro Glu Pro Gly Ala Ala Ala Gly Leu
            565             570             575

Glu Val Phe Thr Gln Lys Ser Leu Ala Ala Ser Pro Glu Gly Ser Glu
            580             585             590

His Trp Val Phe Ile Glu Arg Glu Tyr Thr Arg Pro Glu Glu Leu Gly
        595             600             605

Leu Leu Lys Val Thr Thr Met Gln Gln Glu Glu Arg Gln Ala Gly Leu
    610             615             620

Ala Gly Ile Leu Ala Asn Gly Arg Leu Ser Lys Val Asp Val Leu Val
625             630             635             640

Asp Lys Phe Lys Val Glu Val Ala Thr Glu Glu Met Val Gly Asn Arg
            645             650             655

Arg Ala Asn Thr Gln Gln Gln Gly Lys Met Ile Ala Ser Pro Glu Asp
            660             665             670

Phe Glu Ser Val Gly Glu Glu Gly Pro Trp Ile Arg Glu Ser Pro Gly
            675             680             685
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Gly Ala Ala Leu Ala Ser Gly Arg Thr Leu Ala Glu Lys Leu Leu Glu
    690   695   700

Gly Ser Glu Leu Arg Ala Asp Thr Arg Glu Ala Thr Ile Arg Asn Arg
705   710   715   720

Cys Met Ser Asp Gly Gln Pro Glu Gly Gln Thr Glu Leu Arg Lys Gly
            725   730   735

Leu Glu Glu Pro His Thr Cys Gly Arg Pro Thr Ala Pro Gly Thr Arg
          740   745   750

Pro Ala Glu Val Asp Val Leu Ser Pro Ala Ser Asp Lys Gly Gly Leu
        755   760   765

Gln Ser Phe Leu Leu Asp Pro Ala His Ala Glu Ala Arg Ala Glu Leu
    770   775   780

Ser Asn Glu Thr Asp Thr Ser Phe Ala Glu Arg Ser Phe Tyr Leu Asn
785   790   795   800

Tyr Glu Glu Lys Asp Ser Glu Asp Gln Val Leu Pro Pro Pro Leu Glu
          805   810   815

Glu Arg Lys Gly Arg Leu Asp Ala Pro Pro Gly Gly Glu Pro Arg Pro
        820   825   830

Thr Leu Asn Ser Leu Asp Leu Arg Val Ser Ala Ala Ala Ser Ser Arg
        835   840   845

Ser Lys Asp Glu Ala His Met Thr Ser Pro Lys Glu Gly Ala Gly Thr
    850   855   860

Pro Lys Asn His Gly Gly Pro Gly Asp Leu Lys Gly Ser Pro Ala Gly
865   870   875   880

Gln Thr Phe Ala Glu Gly Trp Glu Asp Ala Gln Trp Gly Val Glu Gly
        885   890   895

Glu Phe Pro His Leu Thr Ala Ser Ala Ala Arg Glu Glu Gly Thr Pro
        900   905   910

Val Ser Gly Asp Leu Leu Gly Lys Ala Glu Glu Ser Pro Thr Glu Glu
    915   920   925

Leu Lys Lys His Pro Pro His Arg Gly Gln Gly Val His Pro Asp Pro
    930   935   940

Gln Ala Cys Ala Leu Pro Arg Ala Ile Pro Leu Asn Val Arg Lys Pro
945   950   955   960

Val Lys Pro Asp Arg Gly Asn Phe Pro Pro Lys Glu Arg Gly Val Val
                965   970   975

Pro Thr Gln Lys Gly Gly Ala Glu Leu Lys Asp Arg Glu Ala Ser Ala
            980   985   990

Phe Leu His Met Glu Val Ile Ile Pro Leu Pro Ala Ser Pro Gly His
        995   1000   1005

Ser Glu Asp Leu Ala Ala Leu Glu Glu Ala Ser Pro Ser Pro Thr
    1010   1015   1020

Ser His Gly Ser Gly Glu Pro Ser Glu Leu Arg Glu Pro Phe Leu
    1025   1030   1035

Arg His Val His Leu Ser Lys Ala Ser Pro Glu Pro Lys Asp Gln
    1040   1045   1050

Val Gly Phe Val Val Ser Pro Ala Thr Gly Gly Glu Arg Arg Pro
    1055   1060   1065

Pro Pro Ile Thr Ser Arg Lys Pro Arg Val Val Pro Glu Glu Ala
    1070   1075   1080

Glu Gly Arg Ile Pro Leu Gly Phe Gly Phe Pro Ser Gly Lys Arg
    1085   1090   1095

Arg Glu Met Thr Ser Phe Gln Ala Gly Asp Gln Glu Gly Ser Leu
    1100   1105   1110

Glu Asp Ile Ser Lys Thr Ser Val Ala Asn Lys Ile Arg Ile Phe
    1115   1120   1125

Glu Thr His Gly Ala Glu Thr Arg Arg Met Ser Glu Gly Glu Ala
    1130   1135   1140

Arg Ser Leu Pro Asn Asp Val Ser Ser Glu Ala Pro Val Gly Gln
    1145   1150   1155

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Ala Glu   Gln Gln Arg Ser Thr   Leu Ser Asp Leu Gly   Phe Ala Gln
    1160              1165               1170

Leu Gln   Pro Pro Gly Asp Phe   Ala Ser Pro Lys Ala   Thr His Ser
    1175              1180               1185

Thr Val   Ile Pro Leu Ala Thr   Arg His Phe Arg Glu   Asp Thr Ser
    1190              1195               1200

Ala Ser   Tyr Gln Glu Ala His   Thr Glu Leu Glu Pro   Val Ser Pro
    1205              1210               1215

Asn Ser   Gly Cys Glu Thr Thr   Leu Ala Glu Ala Thr   Gly Thr Gly
    1220              1225               1230

Val Thr   Gly Arg Asn Lys Ser   Gly Asp Ala Val Arg   Glu Glu Lys
    1235              1240               1245

Arg Ser   Thr Asn Leu Ala Ala   Asn Thr Pro Gly Lys   Gly Gly Arg
    1250              1255               1260

Leu Arg   Phe Ala Ser Pro Ser   Gly Pro Gln Arg Ala   Gly Leu Arg
    1265              1270               1275

Glu Gly   Ser Glu Glu Lys Val   Lys Pro Pro Arg Pro   Arg Ala Pro
    1280              1285               1290

Glu Ser   Asp Thr Gly Asp Glu   Asp Gln Asp Gln Glu   Arg Asp Thr
    1295              1300               1305

Val Phe   Leu Lys Asp Asn His   Leu Ala Ile Glu Arg   Lys Cys Ser
    1310              1315               1320

Ser Ile   Thr Val Ser Ser Thr   Ser Ser Leu Glu Ala   Glu Val Asp
    1325              1330               1335

Phe Thr   Val Ile Gly Asp Tyr   His Gly Ser Ala Phe   Glu Asp Phe
    1340              1345               1350

Ser Arg   Ser Leu Pro Glu Leu   Asp Arg Asp Lys Ser   Asp Ser Asp
    1355              1360               1365

Thr Glu   Gly Leu Leu Phe Ser   Arg Asp Leu Asn Lys   Gly Ala Pro
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         1370                      1375                      1380


Ser Gln  Asp Asp Glu Ser Gly  Gly Ile Glu Asp Ser  Pro Asp Arg
    1385                  1390                  1395


Gly Ala  Cys Ser Thr Pro Asp  Met Pro Gln Phe Glu  Pro Val Lys
    1400                  1405                  1410


Thr Glu  Thr Met Thr Val Ser  Ser Leu Ala Ile Arg  Lys Lys Ile
    1415                  1420                  1425


Glu Pro  Glu Ala Val Leu Gln  Thr Arg Val Ser Ala  Met Asp Asn
    1430                  1435                  1440


Thr Gln  Val Asp Gly Ser Ala  Ser Val Gly Arg Glu  Phe Ile Ala
    1445                  1450                  1455


Thr Thr  Pro Ser Ile Thr Thr  Glu Thr Ile Ser Thr  Thr Met Glu
    1460                  1465                  1470


Asn Ser  Leu Lys Ser Gly Lys  Gly Ala Ala Ala Met  Ile Pro Gly
    1475                  1480                  1485


Pro Gln  Thr Val Ala Thr Glu  Ile Arg Ser Leu Ser  Pro Ile Ile
    1490                  1495                  1500


Gly Lys  Asp Val Leu Thr Ser  Thr Tyr Gly Ala Thr  Ala Glu Thr
    1505                  1510                  1515


Leu Ser  Thr Ser Thr Thr Thr  His Val Thr Lys Thr  Val Lys Gly
    1520                  1525                  1530


Gly Phe  Ser Glu Thr Arg Ile  Glu Lys Arg Ile Ile  Ile Thr Gly
    1535                  1540                  1545


Asp Glu  Asp Val Asp Gln Asp  Gln Ala Leu Ala Leu  Ala Ile Lys
    1550                  1555                  1560


Glu Ala  Lys Leu Gln His Pro  Asp Met Leu Val Thr  Lys Ala Val
    1565                  1570                  1575


Val Tyr  Arg Glu Thr Asp Pro  Ser Pro Glu Glu Arg  Asp Lys Lys
    1580                  1585                  1590
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Pro Gln Lys
    1595

<210>   48
<211>   455
<212>   PRT
<213>   Homo sapien

<400>   48

Met Ala Ala Pro Glu Glu His Asp Ser Pro Thr Glu Ala Ser Gln Pro
1   5   10   15

Ile Val Glu Glu Glu Glu Thr Lys Thr Phe Lys Asp Leu Gly Val Thr
            20   25   30

Asp Val Leu Cys Glu Ala Cys Asp Gln Leu Gly Trp Thr Lys Pro Thr
        35   40   45

Lys Ile Gln Ile Glu Ala Ile Pro Leu Ala Leu Gln Gly Arg Asp Ile
    50   55   60

Ile Gly Leu Ala Glu Thr Gly Ser Gly Lys Thr Gly Ala Phe Ala Leu
65   70   75   80

Pro Ile Leu Asn Ala Leu Leu Glu Thr Pro Gln Arg Leu Phe Ala Leu
            85   90   95

Val Leu Thr Pro Thr Arg Glu Leu Ala Phe Gln Ile Ser Glu Gln Phe
            100   105   110

Glu Ala Leu Gly Ser Ser Ile Gly Val Gln Ser Ala Val Ile Val Gly
            115   120   125

Gly Ile Asp Ser Met Ser Gln Ser Leu Ala Leu Ala Lys Lys Pro His
        130   135   140

Ile Ile Ile Ala Thr Pro Gly Arg Leu Ile Asp His Leu Glu Asn Thr
145   150   155   160

Lys Gly Phe Asn Leu Arg Ala Leu Lys Tyr Leu Val Met Asp Glu Ala
            165   170   175

Asp Arg Ile Leu Asn Met Asp Phe Glu Thr Glu Val Asp Lys Ile Leu
            180   185   190

Lys Val Ile Pro Arg Asp Arg Lys Thr Phe Leu Phe Ser Ala Thr Met
      195   200   205

Thr Lys Lys Val Gln Lys Leu Gln Arg Ala Ala Leu Lys Asn Pro Val
    210   215   220

Lys Cys Ala Val Ser Ser Lys Tyr Gln Thr Val Glu Lys Leu Gln Gln
225   230   235   240

Tyr Tyr Ile Phe Ile Pro Ser Lys Phe Lys Asp Thr Tyr Leu Val Tyr
        245   250   255

Ile Leu Asn Glu Leu Ala Gly Asn Ser Phe Met Ile Phe Cys Ser Thr
        260   265   270

Cys Asn Asn Thr Gln Arg Thr Ala Leu Leu Leu Arg Asn Leu Gly Phe
      275   280   285

Thr Ala Ile Pro Leu His Gly Gln Met Ser Gln Ser Lys Arg Leu Gly
    290   295   300

Ser Leu Asn Lys Phe Lys Ala Lys Ala Arg Ser Ile Leu Leu Ala Thr
305   310   315   320

Asp Val Ala Ser Arg Gly Leu Asp Ile Pro His Val Asp Val Val Val
        325   330   335

Asn Phe Asp Ile Pro Thr His Ser Lys Asp Tyr Ile His Arg Val Gly
        340   345   350

Arg Thr Ala Arg Ala Gly Arg Ser Gly Lys Ala Ile Thr Phe Val Thr
      355   360   365

Gln Tyr Asp Val Glu Leu Phe Gln Arg Ile Glu His Leu Ile Gly Lys
    370   375   380

Lys Leu Pro Gly Phe Pro Thr Gln Asp Asp Glu Val Met Met Leu Thr
385   390   395   400

Glu Arg Val Ala Glu Ala Gln Arg Phe Ala Arg Met Glu Leu Arg Glu
          405   410   415

His Gly Glu Lys Lys Lys Arg Ser Arg Glu Asp Ala Gly Asp Asn Asp
        420   425   430

Asp Thr Glu Gly Ala Ile Gly Val Arg Asn Lys Val Ala Gly Gly Lys
     435   440   445

Met Lys Lys Arg Lys Gly Arg
   450   455

<210> 49
<211> 246
<212> PRT
<213> Homo sapien

<400> 49

Met Ala Trp Ala Pro Leu Leu Leu Thr Leu Leu Ser Leu Leu Thr Gly
1   5   10   15

Ser Leu Ser Gln Pro Ile Leu Thr Gln Pro Pro Ser Ala Ser Ala Ser
       20   25   30

Leu Gly Ala Ser Val Thr Leu Thr Cys Ser Val Ser Ser Asp Tyr Lys
       35   40   45

Asn Leu Glu Val Asp Trp Phe Gln Gln Arg Pro Gly Lys Gly Pro Arg
   50   55   60

Phe Val Met Arg Val Gly Thr Gly Gly Val Val Gly Phe Arg Gly Ala
65   70   75   80

Asp Ile Pro Asp Arg Phe Ser Val Ser Gly Ser Gly Leu Asn Arg Phe
       85   90   95

Leu Thr Ile Arg Asn Ile Glu Glu Glu Asp Glu Ser Asp Tyr His Cys
       100   105   110

Gly Thr Asp Leu Gly Ser Gly Thr Ser Phe Val Ser Trp Val Phe Gly
       115   120   125

Gly Gly Thr Lys Leu Thr Val Leu Ser Gln Pro Lys Ala Ala Pro Ser
      130   135   140

Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln Ala Asn Lys Ala
145   150   155   160

Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly Ala Val Thr Val
       165   170   175

Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly Val Glu Thr Thr
            180   185   190

Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala Ser Ser Tyr Leu
            195   200   205

Ser Leu Thr Pro Glu Gln Trp Lys Ser Asn Arg Ser Tyr Ser Cys Gln
    210   215   220

Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val Ala Pro Thr Glu
225   230   235   240

Cys Ser Thr Glu Cys Ser
                245

<210>   50
<211>   228
<212>   PRT
<213>   Homo sapien

<400>   50

Ala Asn Ala Leu Gly Pro Cys Ala Glu Ile Val Met Thr Gln Thr Pro
1   5   10   15

Leu Ser Leu Ser Ile Thr Pro Gly Glu Gln Ala Ser Met Ser Cys Arg
            20   25   30

Ser Ser Gln Ser Leu Leu His Ser Asp Gly Tyr Thr Tyr Leu Tyr Trp
        35   40   45

Phe Leu Gln Lys Pro Gly Gln Ser Pro Gln Leu Leu Ile Tyr Glu Val
    50   55   60

Ser Asn Arg Phe Ser Gly Val Ser Pro Ile Arg Phe Ser Gly Ser Gly
65   70   75   80

Ser Gly Arg Glu Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Asp Asp
                85   90   95

Ala Gly Val Tyr Tyr Cys Met Gln Thr Thr Gln Thr Pro Asn Thr Phe
            100   105   110

Gly Gln Gly Thr Arg Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser
        115   120   125

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Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala
    130             135             140

Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
145             150             155                     160

Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser
                165             170                 175

Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
            180             185                 190

Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Leu Tyr Ala Cys
        195             200                 205

Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn
    210             215                 220

Arg Gly Glu Cys
225


<210>  51
<211>  106
<212>  PRT
<213>  Homo sapien

<400>  51

Gly Gln Pro Lys Ala Asn Pro Thr Val Thr Leu Phe Pro Pro Ser Ser
1               5               10              15

Glu Glu Leu Gln Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp
            20              25              30

Phe Tyr Pro Gly Ala Val Thr Val Ala Trp Lys Ala Asp Gly Ser Pro
        35              40              45

Val Lys Ala Gly Val Glu Thr Thr Lys Pro Ser Lys Gln Ser Asn Asn
    50              55              60

Lys Tyr Ala Ala Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys
65              70              75                      80

Ser His Arg Ser Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val
                85              90                  95
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Glu Lys Thr Val Ala Pro Thr Glu Cys Ser
            100   105

<210>   52
<211>   56
<212>   PRT
<213>   Homo sapien

<400>   52

Arg Thr Gly Tyr Glu Glu Glu Thr Trp Asn Leu Lys Glu Cys Val Gly
1   5   10   15

Arg Cys Ala Asn Pro Asn Val Asn Phe Leu Thr Lys Val Glu Ser Pro
            20   25   30

Gly Met Val Gln Arg Trp Gly Leu Leu Leu Cys Arg Arg Asp Ser Arg
            35   40   45

Phe Thr Pro Trp Gln Lys Ile Tyr
    50   55

<210>   53
<211>   824
<212>   PRT
<213>   Homo sapien

<400>   53

Met Ala Phe Ala Ser Phe Arg Arg Ile Leu Ala Leu Ser Thr Phe Glu
1   5   10   15

Lys Arg Lys Ser Arg Glu Tyr Glu His Val Arg Arg Asp Leu Asp Pro
            20   25   30

Asn Glu Val Trp Glu Ile Val Gly Glu Leu Gly Asp Gly Ser Phe Gly
            35   40   45

Met Val Tyr Lys Ala Lys Asn Lys Glu Thr Gly Ala Leu Ala Ala Ala
    50   55   60

Ile Val Ile Glu Thr Lys Ser Glu Glu Glu Leu Glu Asp Tyr Ile Val
65   70   75   80

Glu Ile Glu Ile Leu Ala Thr Cys Asp His Pro Tyr Ile Val Lys Leu
            85   90   95

Leu Gly Ala Tyr Tyr His Asp Gly Lys Leu Trp Ile Met Ile Glu Phe
         100   105   110

Cys Pro Gly Gly Ala Val Asp Ala Ile Met Leu Glu Leu Asp Arg Gly
         115   120   125

Leu Thr Glu Pro Gln Ile Gln Val Val Cys Arg Gln Met Leu Glu Ala
     130   135   140

Leu Asn Phe Leu His Ser Lys Arg Ile Ile His Arg Asp Leu Lys Ala
145   150   155   160

Gly Asn Val Leu Met Thr Leu Glu Gly Asp Ile Arg Leu Ala Asp Phe
             165   170   175

Gly Val Ser Ala Lys Asn Leu Lys Thr Leu Gln Lys Arg Asp Ser Phe
         180   185   190

Ile Gly Thr Pro Tyr Trp Met Ala Pro Glu Val Val Met Cys Glu Thr
         195   200   205

Met Lys Asp Thr Pro Tyr Asp Tyr Lys Ala Asp Ile Trp Ser Leu Gly
     210   215   220

Ile Thr Leu Ile Glu Met Ala Gln Ile Glu Pro Pro His His Glu Leu
225   230   235   240

Asn Pro Met Arg Val Leu Leu Lys Ile Ala Lys Ser Asp Pro Pro Thr
             245   250   255

Leu Leu Thr Pro Ser Lys Trp Ser Val Glu Phe Arg Asp Phe Leu Lys
         260   265   270

Ile Ala Leu Asp Lys Asn Pro Glu Thr Arg Pro Ser Ala Ala Ala Ala
         275   280   285

Leu Glu His Pro Phe Val Ser Ser Ile Thr Ser Asn Lys Ala Leu Arg
     290   295   300

Glu Leu Val Ala Glu Ala Lys Ala Glu Val Met Glu Glu Ile Glu Asp
305   310   315   320

Gly Arg Asp Glu Gly Glu Glu Glu Asp Ala Val Asp Ala Ala Ser Thr
         325   330   335

```
Leu Glu Asn His Thr Gln Asn Ser Ser Glu Val Ser Pro Pro Ser Leu
            340             345             350

Asn Ala Asp Lys Pro Leu Glu Glu Ser Pro Ser Thr Pro Leu Ala Pro
            355             360             365

Ser Gln Ser Gln Asp Ser Val Asn Glu Pro Cys Ser Gln Pro Ser Gly
    370             375             380

Asp Arg Ser Leu Gln Thr Thr Ser Pro Pro Val Val Ala Pro Gly Asn
385             390             395             400

Glu Asn Gly Leu Ala Val Pro Val Pro Leu Arg Lys Ser Arg Pro Val
            405             410             415

Ser Met Asp Ala Arg Ile Gln Val Ala Gln Glu Lys Gln Val Ala Glu
            420             425             430

Gln Gly Gly Asp Leu Ser Pro Ala Ala Asn Arg Ser Gln Lys Ala Ser
            435             440             445

Gln Ser Arg Pro Asn Ser Ser Ala Leu Glu Thr Leu Gly Gly Glu Lys
    450             455             460

Leu Ala Asn Gly Ser Leu Glu Pro Pro Ala Gln Ala Ala Pro Gly Pro
465             470             475             480

Ser Lys Arg Asp Ser Asp Cys Ser Ser Leu Cys Thr Ser Glu Ser Met
            485             490             495

Asp Tyr Gly Thr Asn Leu Ser Thr Asp Leu Ser Leu Asn Lys Glu Met
            500             505             510

Gly Ser Leu Ser Ile Lys Asp Pro Lys Leu Tyr Lys Lys Thr Leu Lys
            515             520             525

Arg Thr Arg Lys Phe Val Val Asp Gly Val Glu Val Ser Ile Thr Thr
            530             535             540

Ser Lys Ile Ile Ser Glu Asp Glu Lys Lys Asp Glu Glu Met Arg Phe
545             550             555             560

Leu Arg Arg Gln Glu Leu Arg Glu Leu Arg Leu Leu Gln Lys Glu Glu
            565             570             575
```

His Arg Asn Gln Thr Gln Leu Ser Asn Lys His Glu Leu Gln Leu Glu
            580   585   590

Gln Met His Lys Arg Phe Glu Gln Glu Ile Asn Ala Lys Lys Lys Phe
     595   600   605

Phe Asp Thr Glu Leu Glu Asn Leu Glu Arg Gln Gln Lys Gln Gln Val
     610   615   620

Glu Lys Met Glu Gln Asp His Ala Val Arg Arg Arg Glu Glu Ala Arg
625   630   635   640

Arg Ile Arg Leu Glu Gln Asp Arg Asp Tyr Thr Arg Phe Gln Glu Gln
            645   650   655

Leu Lys Leu Met Lys Lys Glu Val Lys Asn Glu Val Glu Lys Leu Pro
          660   665   670

Arg Gln Gln Arg Lys Glu Ser Met Lys Gln Lys Met Glu Glu His Thr
       675   680   685

Gln Lys Lys Gln Leu Leu Asp Arg Asp Phe Val Ala Lys Gln Lys Glu
     690   695   700

Asp Leu Glu Leu Ala Met Lys Arg Leu Thr Thr Asp Asn Arg Arg Glu
705   710   715   720

Ile Cys Asp Lys Glu Arg Glu Cys Leu Met Lys Lys Gln Glu Leu Leu
          725   730   735

Arg Asp Arg Glu Ala Ala Leu Trp Glu Met Glu Glu His Gln Leu Gln
          740   745   750

Glu Arg His Gln Leu Val Lys Gln Gln Leu Lys Asp Gln Tyr Phe Leu
      755   760   765

Gln Arg His Glu Leu Leu Arg Lys His Glu Lys Glu Arg Glu Gln Met
     770   775   780

Gln Arg Tyr Asn Gln Arg Met Ile Glu Gln Leu Lys Val Arg Gln Gln
785   790   795   800

Gln Glu Lys Ala Arg Leu Pro Lys Ile Gln Arg Ser Glu Gly Lys Thr

```
                 805                     810                        815

         Arg Met Ala Met Tyr Lys Lys Ser
                     820


         <210>   54
         <211>   1997
         <212>   PRT
         <213>   Homo sapien

         <400>   54

         Met Leu Ser His Gly Ala Gly Leu Ala Leu Trp Ile Thr Leu Ser Leu
         1               5                   10                  15


         Leu Gln Thr Gly Leu Ala Glu Pro Glu Arg Cys Asn Phe Thr Leu Ala
                     20                  25                  30


         Glu Ser Lys Ala Ser Ser His Ser Val Ser Ile Gln Trp Arg Ile Leu
                     35                  40                  45


         Gly Ser Pro Cys Asn Phe Ser Leu Ile Tyr Ser Ser Asp Thr Leu Gly
                 50                  55                  60


         Ala Ala Leu Cys Pro Thr Phe Arg Ile Asp Asn Thr Thr Tyr Gly Cys
         65                  70                  75                  80


         Asn Leu Gln Asp Leu Gln Ala Gly Thr Ile Tyr Asn Phe Arg Ile Ile
                         85                  90                  95


         Ser Leu Asp Glu Glu Arg Thr Val Val Leu Gln Thr Asp Pro Leu Pro
                     100                 105                 110


         Pro Ala Arg Phe Gly Val Ser Lys Glu Lys Thr Thr Ser Thr Ser Leu
                     115                 120                 125


         His Val Trp Trp Thr Pro Ser Ser Gly Lys Val Thr Ser Tyr Glu Val
                 130                 135                 140


         Gln Leu Phe Asp Glu Asn Asn Gln Lys Ile Gln Gly Val Gln Ile Gln
         145                 150                 155                 160


         Glu Ser Thr Ser Trp Asn Glu Tyr Thr Phe Phe Asn Leu Thr Ala Gly
                         165                 170                 175


         Ser Lys Tyr Asn Ile Ala Ile Thr Ala Val Ser Gly Gly Lys Arg Ser
```

```
                   180                        185                        190

Phe Ser Val Tyr Thr Asn Gly Ser Thr Val Pro Ser Pro Val Lys Asp
        195                     200                 205

Ile Gly Ile Ser Thr Lys Ala Asn Ser Leu Leu Ile Ser Trp Ser His
        210                     215                 220

Gly Ser Gly Asn Val Glu Arg Tyr Arg Leu Met Leu Met Asp Lys Gly
225                     230                 235                     240

Ile Leu Val His Gly Gly Val Val Asp Lys His Ala Thr Ser Tyr Ala
                245                 250                     255

Phe His Gly Leu Ser Pro Gly Tyr Leu Tyr Asn Leu Thr Val Met Thr
            260                 265                 270

Glu Ala Ala Gly Leu Gln Asn Tyr Arg Trp Lys Leu Val Arg Thr Ala
        275                 280                 285

Pro Met Glu Val Ser Asn Leu Lys Val Thr Asn Asp Gly Ser Leu Thr
        290                 295                 300

Ser Leu Lys Val Lys Trp Gln Arg Pro Pro Gly Asn Val Asp Ser Tyr
305                     310                 315                     320

Asn Ile Thr Leu Ser His Lys Gly Thr Ile Lys Glu Ser Arg Val Leu
                325                 330                     335

Ala Pro Trp Ile Thr Glu Thr His Phe Lys Glu Leu Val Pro Gly Arg
            340                 345                 350

Leu Tyr Gln Val Thr Val Ser Cys Val Ser Gly Glu Leu Ser Ala Gln
        355                 360                 365

Lys Met Ala Val Gly Arg Thr Phe Pro Asp Lys Val Ala Asn Leu Glu
        370                 375                 380

Ala Asn Asn Asn Gly Arg Met Arg Ser Leu Val Val Ser Trp Ser Pro
385                 390                 395                     400

Pro Ala Gly Asp Trp Glu Gln Tyr Arg Ile Leu Leu Phe Asn Asp Ser
                405                 410                 415
```

Val Val Leu Leu Asn Ile Thr Val Gly Lys Glu Glu Thr Gln Tyr Val
           420   425   430

Met Asp Asp Thr Gly Leu Val Pro Gly Arg Gln Tyr Glu Val Glu Val
           435   440   445

Ile Val Glu Ser Gly Asn Leu Lys Asn Ser Glu Arg Cys Gln Gly Arg
      450   455   460

Thr Val Pro Leu Ala Val Leu Gln Leu Arg Val Lys His Ala Asn Glu
465   470   475   480

Thr Ser Leu Ser Ile Met Trp Gln Thr Pro Val Ala Glu Trp Glu Lys
              485   490   495

Tyr Ile Ile Ser Leu Ala Asp Arg Asp Leu Leu Leu Ile His Lys Ser
          500   505   510

Leu Ser Lys Asp Ala Lys Glu Phe Thr Phe Thr Asp Leu Val Pro Gly
        515   520   525

Arg Lys Tyr Met Ala Thr Val Thr Ser Ile Ser Gly Asp Leu Lys Asn
      530   535   540

Ser Ser Ser Val Lys Gly Arg Thr Val Pro Ala Gln Val Thr Asp Leu
545   550   555   560

His Val Ala Asn Gln Gly Met Thr Ser Ser Leu Phe Thr Asn Trp Thr
          565   570   575

Gln Ala Gln Gly Asp Val Glu Phe Tyr Gln Val Leu Leu Ile His Glu
        580   585   590

Asn Val Val Ile Lys Asn Glu Ser Ile Ser Ser Glu Thr Ser Arg Tyr
      595   600   605

Ser Phe His Ser Leu Lys Ser Gly Ser Leu Tyr Ser Val Val Val Thr
      610   615   620

Thr Val Ser Gly Gly Ile Ser Ser Arg Gln Val Val Val Glu Gly Arg
625   630   635   640

Thr Val Pro Ser Ser Val Ser Gly Val Thr Val Asn Asn Ser Gly Arg
        645   650   655

Asn Asp Tyr Leu Ser Val Ser Trp Leu Val Ala Pro Gly Asp Val Asp
            660   665   670

Asn Tyr Glu Val Thr Leu Ser His Asp Gly Lys Val Val Gln Ser Leu
            675   680   685

Val Ile Ala Lys Ser Val Arg Glu Cys Ser Phe Ser Ser Leu Thr Pro
    690   695   700

Gly Arg Leu Tyr Thr Val Thr Ile Thr Thr Arg Ser Gly Lys Tyr Glu
705   710   715   720

Asn His Ser Phe Ser Gln Glu Arg Thr Val Pro Asp Lys Val Gln Gly
                725   730   735

Val Ser Val Ser Asn Ser Ala Arg Ser Asp Tyr Leu Arg Val Ser Trp
            740   745   750

Val Tyr Ala Thr Gly Asp Phe Asp His Tyr Glu Val Thr Ile Lys Asn
        755   760   765

Lys Asn Asn Phe Ile Gln Thr Lys Ser Ile Pro Lys Ser Glu Asn Glu
    770   775   780

Cys Val Phe Val Gln Leu Val Pro Gly Arg Leu Tyr Ser Val Thr Val
785   790   795   800

Thr Thr Lys Ser Gly Gln Tyr Glu Ala Asn Glu Gln Gly Asn Gly Arg
                805   810   815

Thr Ile Pro Glu Pro Val Lys Asp Leu Thr Leu Arg Asn Arg Ser Thr
            820   825   830

Glu Asp Leu His Val Thr Trp Ser Gly Ala Asn Gly Asp Val Asp Gln
        835   840   845

Tyr Glu Ile Gln Leu Leu Phe Asn Asp Met Lys Val Phe Pro Pro Phe
    850   855   860

His Leu Val Asn Thr Ala Thr Glu Tyr Arg Phe Thr Ser Leu Thr Pro
865   870   875   880

Gly Arg Gln Tyr Lys Ile Leu Val Leu Thr Ile Ser Gly Asp Val Gln
            885   890   895

Gln Ser Ala Phe Ile Glu Gly Phe Thr Val Pro Ser Ala Val Lys Asn
            900   905   910

Ile His Ile Ser Pro Asn Gly Ala Thr Asp Ser Leu Thr Val Asn Trp
        915   920   925

Thr Pro Gly Gly Gly Asp Val Asp Ser Tyr Thr Val Ser Ala Phe Arg
    930   935   940

His Ser Gln Lys Val Asp Ser Gln Thr Ile Pro Lys His Val Phe Glu
945   950   955   960

His Thr Phe His Arg Leu Glu Ala Gly Glu Gln Tyr Gln Ile Met Ile
            965   970   975

Ala Ser Val Ser Gly Ser Leu Lys Asn Gln Ile Asn Val Val Gly Arg
            980   985   990

Thr Val Pro Ala Ser Val Gln Gly Val Ile Ala Asp Asn Ala Tyr Ser
    995   1000   1005

Ser Tyr Ser Leu Ile Val Ser Trp Gln Lys Ala Ala Gly Val Ala
    1010   1015   1020

Glu Arg Tyr Asp Ile Leu Leu Leu Thr Glu Asn Gly Ile Leu Leu
    1025   1030   1035

Arg Asn Thr Ser Glu Pro Ala Thr Thr Lys Gln His Lys Phe Glu
    1040   1045   1050

Asp Leu Thr Pro Gly Lys Lys Tyr Lys Ile Gln Ile Leu Thr Val
    1055   1060   1065

Ser Gly Gly Leu Phe Ser Lys Glu Ala Gln Thr Glu Gly Arg Thr
    1070   1075   1080

Val Pro Ala Ala Val Thr Asp Leu Arg Ile Thr Glu Asn Ser Thr
    1085   1090   1095

Arg His Leu Ser Phe Arg Trp Thr Ala Ser Glu Gly Glu Leu Ser
    1100   1105   1110

Trp Tyr Asn Ile Phe Leu Tyr Asn Pro Asp Gly Asn Leu Gln Glu

```
        1115                      1120                      1125

Arg Ala  Gln Val Asp Pro Leu  Val Gln Ser Phe Ser  Phe Gln Asn
    1130                      1135                     1140

Leu Leu  Gln Gly Arg Met Tyr  Lys Met Val Ile Val  Thr His Ser
    1145                      1150                     1155

Gly Glu  Leu Ser Asn Glu Ser  Phe Ile Phe Gly Arg  Thr Val Pro
    1160                      1165                     1170

Ala Ser  Val Ser His Leu Arg  Gly Ser Asn Arg Asn  Thr Thr Asp
    1175                      1180                     1185

Ser Leu  Trp Phe Asn Trp Ser  Pro Ala Ser Gly Asp  Phe Asp Phe
    1190                      1195                     1200

Tyr Glu  Leu Ile Leu Tyr Asn  Pro Asn Gly Thr Lys  Lys Glu Asn
    1205                      1210                     1215

Trp Lys  Asp Lys Asp Leu Thr  Glu Trp Arg Phe Gln  Gly Leu Val
    1220                      1225                     1230

Pro Gly  Arg Lys Tyr Val Leu  Trp Val Val Thr His  Ser Gly Asp
    1235                      1240                     1245

Leu Ser  Asn Lys Val Thr Ala  Glu Ser Arg Thr Ala  Pro Ser Pro
    1250                      1255                     1260

Pro Ser  Leu Met Ser Phe Ala  Asp Ile Ala Asn Thr  Ser Leu Ala
    1265                      1270                     1275

Ile Thr  Trp Lys Gly Pro Pro  Asp Trp Thr Asp Tyr  Asn Asp Phe
    1280                      1285                     1290

Glu Leu  Gln Trp Leu Pro Arg  Asp Ala Leu Thr Val  Phe Asn Pro
    1295                      1300                     1305

Tyr Asn  Asn Arg Lys Ser Glu  Gly Arg Ile Val Tyr  Gly Leu Arg
    1310                      1315                     1320

Pro Gly  Arg Ser Tyr Gln Phe  Asn Val Lys Thr Val  Ser Gly Asp
    1325                      1330                     1335
```

Ser Trp Lys Thr Tyr Ser Lys Pro Ile Phe Gly Ser Val Arg Thr
    1340   1345   1350

Lys Pro Asp Lys Ile Gln Asn Leu His Cys Arg Pro Gln Asn Ser
    1355   1360   1365

Thr Ala Ile Ala Cys Ser Trp Ile Pro Pro Asp Ser Asp Phe Asp
    1370   1375   1380

Gly Tyr Ser Ile Glu Cys Arg Lys Met Asp Thr Gln Glu Val Glu
    1385   1390   1395

Phe Ser Arg Lys Leu Glu Lys Glu Lys Ser Leu Leu Asn Ile Met
    1400   1405   1410

Met Leu Val Pro His Lys Arg Tyr Leu Val Ser Ile Lys Val Gln
    1415   1420   1425

Ser Ala Gly Met Thr Ser Glu Val Val Glu Asp Ser Thr Ile Thr
    1430   1435   1440

Met Ile Asp Arg Pro Pro Pro Pro Pro Pro His Ile Arg Val Asn
    1445   1450   1455

Glu Lys Asp Val Leu Ile Ser Lys Ser Ser Ile Asn Phe Thr Val
    1460   1465   1470

Asn Cys Ser Trp Phe Ser Asp Thr Asn Gly Ala Val Lys Tyr Phe
    1475   1480   1485

Thr Val Val Val Arg Glu Ala Asp Gly Ser Asp Glu Leu Lys Pro
    1490   1495   1500

Glu Gln Gln His Pro Leu Pro Ser Tyr Leu Glu Tyr Arg His Asn
    1505   1510   1515

Ala Ser Ile Arg Val Tyr Gln Thr Asn Tyr Phe Ala Ser Lys Cys
    1520   1525   1530

Ala Glu Asn Pro Asn Ser Asn Ser Lys Ser Phe Asn Ile Lys Leu
    1535   1540   1545

Gly Ala Glu Met Glu Ser Leu Gly Gly Lys Cys Asp Pro Thr Gln
    1550   1555   1560

```
Gln Lys Phe Cys Asp Gly Pro  Leu Lys Pro His Thr  Ala Tyr Arg
    1565            1570            1575
```

```
Ile Ser Ile Arg Ala Phe Thr  Gln Leu Phe Asp Glu  Asp Leu Lys
    1580            1585            1590
```

```
Glu Phe Thr Lys Pro Leu Tyr  Ser Asp Thr Phe Phe  Ser Leu Pro
    1595            1600            1605
```

```
Ile Thr Thr Glu Ser Glu Pro  Leu Phe Gly Ala Ile  Glu Gly Val
    1610            1615            1620
```

```
Ser Ala Gly Leu Phe Leu Ile  Gly Met Leu Val Ala  Val Val Ala
    1625            1630            1635
```

```
Leu Leu Ile Cys Arg Gln Lys  Val Ser His Gly Arg  Glu Arg Pro
    1640            1645            1650
```

```
Ser Ala Arg Leu Ser Ile Arg  Arg Asp Arg Pro Leu  Ser Val His
    1655            1660            1665
```

```
Leu Asn Leu Gly Gln Lys Gly  Asn Arg Lys Thr Ser  Cys Pro Ile
    1670            1675            1680
```

```
Lys Ile Asn Gln Phe Glu Gly  His Phe Met Lys Leu  Gln Ala Asp
    1685            1690            1695
```

```
Ser Asn Tyr Leu Leu Ser Lys  Glu Tyr Glu Glu Leu  Lys Asp Val
    1700            1705            1710
```

```
Gly Arg Asn Gln Ser Cys Asp  Ile Ala Leu Leu Pro  Glu Asn Arg
    1715            1720            1725
```

```
Gly Lys Asn Arg Tyr Asn Asn  Ile Leu Pro Tyr Asp  Ala Thr Arg
    1730            1735            1740
```

```
Val Lys Leu Ser Asn Val Asp  Asp Asp Pro Cys Ser  Asp Tyr Ile
    1745            1750            1755
```

```
Asn Ala Ser Tyr Ile Pro Gly  Asn Asn Phe Arg Arg  Glu Tyr Ile
    1760            1765            1770
```

```
Val Thr Gln Gly Pro Leu Pro  Gly Thr Lys Asp Asp  Phe Trp Lys
    1775            1780            1785
```

```
Met Val  Trp Glu Gln Asn Val  His Asn Ile Val Met  Val Thr Gln
    1790             1795             1800
```

```
Cys Val  Glu Lys Gly Arg Val  Lys Cys Asp His Tyr  Trp Pro Ala
    1805             1810             1815
```

```
Asp Gln  Asp Ser Leu Tyr Tyr  Gly Asp Leu Ile Leu  Gln Met Leu
    1820             1825             1830
```

```
Ser Glu  Ser Val Leu Pro Glu  Trp Thr Ile Arg Glu  Phe Lys Ile
    1835             1840             1845
```

```
Cys Gly  Glu Glu Gln Leu Asp  Ala His Arg Leu Ile  Arg His Phe
    1850             1855             1860
```

```
His Tyr  Thr Val Trp Pro Asp  His Gly Val Pro Glu  Thr Thr Gln
    1865             1870             1875
```

```
Ser Leu  Ile Gln Phe Val Arg  Thr Val Arg Asp Tyr  Ile Asn Arg
    1880             1885             1890
```

```
Ser Pro  Gly Ala Gly Pro Thr  Val Val His Cys Ser  Ala Gly Val
    1895             1900             1905
```

```
Gly Arg  Thr Gly Thr Phe Ile  Ala Leu Asp Arg Ile  Leu Gln Gln
    1910             1915             1920
```

```
Leu Asp  Ser Lys Asp Ser Val  Asp Ile Tyr Gly Ala  Val His Asp
    1925             1930             1935
```

```
Leu Arg  Leu His Arg Val His  Met Val Gln Thr Glu  Cys Gln Tyr
    1940             1945             1950
```

```
Val Tyr  Leu His Gln Cys Val  Arg Asp Val Leu Arg  Ala Arg Lys
    1955             1960             1965
```

```
Leu Arg  Ser Glu Gln Glu Asn  Pro Leu Phe Pro Ile  Tyr Glu Asn
    1970             1975             1980
```

```
Val Asn  Pro Glu Tyr His Arg  Asp Pro Val Tyr Ser  Arg His
    1985             1990             1995
```

<210>   55

<211> 453
<212> PRT
<213> Homo sapien

<400> 55

```
Met Lys Leu Leu Val Ile Leu Leu Phe Ser Gly Leu Ile Thr Gly Phe
1               5                   10                  15


Arg Ser Asp Ser Ser Ser Ser Leu Pro Pro Lys Leu Leu Leu Val Ser
            20                  25                  30


Phe Asp Gly Phe Arg Ala Asp Tyr Leu Lys Asn Tyr Glu Phe Pro His
            35                  40                  45


Leu Gln Asn Phe Ile Lys Glu Gly Val Leu Val Glu His Val Lys Asn
        50                  55                  60


Val Phe Ile Thr Lys Thr Phe Pro Asn His Tyr Ser Ile Val Thr Gly
65                  70                  75                  80


Leu Tyr Glu Glu Ser His Gly Ile Val Ala Asn Ser Met Tyr Asp Ala
                85                  90                  95


Val Thr Lys Lys His Phe Ser Asp Ser Asn Asp Lys Asp Pro Phe Trp
            100                 105                 110


Trp Asn Glu Ala Val Pro Ile Trp Val Thr Asn Gln Leu Gln Glu Asn
            115                 120                 125


Arg Ser Ser Ala Ala Ala Met Trp Pro Gly Thr Asp Val Pro Ile His
        130                 135                 140


Asp Thr Ile Ser Ser Tyr Phe Met Asn Tyr Asn Ser Ser Val Ser Phe
145                 150                 155                 160


Glu Glu Arg Leu Asn Asn Ile Thr Met Trp Leu Asn Asn Ser Asn Pro
                165                 170                 175


Pro Val Thr Phe Ala Thr Leu Tyr Trp Glu Glu Pro Asp Ala Ser Gly
            180                 185                 190


His Lys Tyr Gly Pro Glu Asp Lys Glu Asn Met Ser Arg Val Leu Lys
        195                 200                 205


Lys Ile Asp Asp Leu Ile Gly Asp Leu Val Gln Arg Leu Lys Met Leu
```

```
               210                        215                        220

Gly Leu Trp Glu Asn Leu Asn Val Ile Ile Thr Ser Asp His Gly Met
225             230                 235                     240

Thr Gln Cys Ser Gln Asp Arg Leu Ile Asn Leu Asp Ser Cys Ile Asp
                245                 250                 255

His Ser Tyr Tyr Thr Leu Ile Asp Leu Ser Pro Val Ala Ala Ile Leu
            260                 265                 270

Pro Lys Ile Asn Arg Thr Glu Val Tyr Asn Lys Leu Lys Asn Cys Ser
        275                 280                 285

Pro His Met Asn Val Tyr Leu Lys Glu Asp Ile Pro Asn Arg Phe Tyr
    290                 295                 300

Tyr Gln His Asn Asp Arg Ile Gln Pro Ile Ile Leu Val Ala Asp Glu
305                 310                 315                     320

Gly Trp Thr Ile Val Leu Asn Glu Ser Ser Gln Lys Leu Gly Asp His
            325                 330                 335

Gly Tyr Asp Asn Ser Leu Pro Ser Met His Pro Phe Leu Ala Ala His
            340                 345                 350

Gly Pro Ala Phe His Lys Gly Tyr Lys His Ser Thr Ile Asn Ile Val
        355                 360                 365

Asp Ile Tyr Pro Met Met Cys His Ile Leu Gly Leu Lys Pro His Pro
    370                 375                 380

Asn Asn Gly Thr Phe Gly His Thr Lys Cys Leu Leu Val Asp Gln Trp
385                 390                 395                     400

Cys Ile Asn Leu Pro Glu Ala Ile Ala Ile Val Ile Gly Ser Leu Leu
                405                 410                 415

Val Leu Thr Met Leu Thr Cys Leu Ile Ile Ile Met Gln Asn Arg Leu
            420                 425                 430

Ser Val Pro Arg Pro Phe Ser Arg Leu Gln Leu Gln Glu Asp Asp Asp
            435                 440                 445
```

```
Asp Pro Leu Ile Gly
    450
```

```
<210>   56
<211>   537
<212>   PRT
<213>   Homo sapien
```

```
<400>   56
```

```
Met Ser Lys Pro His Ser Glu Ala Gly Thr Ala Phe Ile Gln Thr Gln
1               5               10              15
```

```
Gln Leu His Ala Ala Met Ala Asp Thr Phe Leu Glu His Met Cys Arg
            20              25              30
```

```
Leu Asp Ile Asp Ser Pro Pro Ile Thr Ala Arg Asn Thr Gly Ile Ile
        35              40              45
```

```
Cys Thr Ile Gly Pro Ala Ser Arg Ser Val Glu Thr Leu Lys Glu Met
    50              55              60
```

```
Ile Lys Ser Gly Met Asn Val Ala Arg Leu Asn Phe Ser His Gly Thr
65              70              75              80
```

```
His Glu Tyr His Ala Glu Thr Ile Lys Asn Val Arg Thr Ala Thr Glu
            85              90              95
```

```
Ser Phe Ala Ser Asp Pro Ile Leu Tyr Arg Pro Val Ala Val Ala Leu
            100             105             110
```

```
Asp Thr Lys Gly Pro Glu Ile Arg Thr Gly Leu Ile Lys Gly Ser Gly
        115             120             125
```

```
Thr Ala Glu Val Glu Leu Lys Lys Gly Ala Thr Leu Lys Ile Thr Leu
    130             135             140
```

```
Asp Asn Ala Tyr Met Glu Lys Cys Asp Glu Asn Ile Leu Trp Leu Asp
145             150             155             160
```

```
Tyr Lys Asn Ile Cys Lys Val Val Glu Val Gly Ser Lys Ile Tyr Val
            165             170             175
```

```
Asp Asp Gly Leu Ile Ser Leu Gln Val Lys Gln Lys Gly Ala Asp Phe
            180             185             190
```

Leu Val Thr Glu Val Glu Asn Gly Gly Ser Leu Gly Ser Lys Lys Gly
    195   200   205

Val Asn Leu Pro Gly Ala Ala Val Asp Leu Pro Ala Val Ser Glu Lys
    210   215   220

Asp Ile Pro Gly Ser Glu Ser Leu Gly Val Glu Gln Asp Val Asp Met
225   230   235   240

Val Phe Ala Ser Phe His Pro Ala Lys Ala Ser Gly Cys Pro Met Glu
          245   250   255

Ala Leu Gly Ala Val Leu Gly Arg Glu Gly Lys Arg Asn Ile Lys Ile
          260   265   270

Ile Ser Lys Ile Glu Asn His Glu Gly Val Arg Arg Phe Asp Glu Ile
        275   280   285

Leu Glu Ala Ser Asp Gly Ile Met Val Ala Arg Gly Asp Leu Gly Ile
      290   295   300

Glu Ile Pro Ala Glu Lys Val Phe Leu Ala Gln Lys Met Met Ile Gly
305   310   315   320

Arg Cys Asn Pro Arg Thr Gly Lys Pro Val Ile Cys Ala Thr Gln Met
          325   330   335

Leu Glu Ser Ile Ile Lys Lys Pro Arg Pro Thr Arg Ala Glu Gly Ser
        340   345   350

Asp Val Ala Asn Ala Val Leu Asp Gly Ala Asp Cys Ile Met Leu Ser
      355   360   365

Gly Glu Thr Ala Lys Gly Asp Tyr Pro Leu Glu Ala Val Arg Met Gln
    370   375   380

His Leu Ile Ala Arg Glu Ala Glu Ala Ala Ile Tyr His Leu Gln Leu
385   390   395   400

Phe Glu Glu Leu Arg Arg Leu Ala Pro Ile Thr Ser Asp Pro Thr Glu
          405   410   415

Ala Thr Ala Val Gly Ala Val Glu Ala Ser Phe Lys Cys Cys Ser Gly
      420   425   430

```
Ala Ile Ile Val Leu Thr Lys Ser Gly Arg Ser Ala His Gln Val Ala
        435             440             445

Arg Tyr Arg Pro Arg Ala Pro Ile Ile Ala Val Thr Arg Asn Pro Gln
    450             455             460

Thr Ala Arg Gln Ala His Leu Tyr Arg Gly Ile Phe Pro Val Leu Cys
465             470             475                         480

Lys Asp Pro Val Gln Glu Ala Trp Ala Glu Asp Val Asp Leu Arg Val
            485             490                     495

Asn Phe Ala Met Asn Val Gly Lys Ala Arg Gly Phe Phe Lys Lys Gly
            500             505                 510

Asp Val Val Ile Val Leu Thr Gly Trp Arg Pro Gly Ser Gly Phe Thr
        515             520             525

Asn Thr Met Arg Val Val Pro Val Pro
    530             535
```